IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Appl. No.:   09/659,431   Confirmation No.: 4265
Appellant: Hosur et al
Filed: September 8, 2000
TC/AU: 2634
Examiner: Liu

Docket: TI-29648
Cust.No.:   23494

                        APPELLANTS' BRIEF

Commissioner for Patents
P.O.Box 1450
Alexandria VA 22313-1450

Sir:
      The attached sheets contain the Rule 41.37 items of appellants' brief; this

brief is pursuant to MPEP 1204.01 (Reinstatement of Appeal). The fee for filing a

brief in support of the appeal has previously been paid; and the Commissioner is

hereby authorized to charge any other necessary fees to the deposit account of

Texas Instruments Incorporated, account No. 20-0668.

Respectfully submitted,

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Rule 41.37(c)(1)(i) Real party of interest

Texas Instruments Incorporated owns the application.

Rule 41.37(c)(1)(ii) Related appeals and interferences

There are no related dispositive appeals or interferences.

Rule 41.37(c)(1)(iii) Status of claims

Claims 1-9 are pending in the application with claims 4-9 allowed, claim 3 objected to, and claims 1-2 finally rejected. This appeal involves the finally rejected claims.

Rule 41.37(c)(1)(iv) Status of amendments

There is no amendment after final rejection.

Rule 41.37(c)(1)(v) Summary of claimed subject matter

The claim 1 invention provides a method, useful in spread spectrum wireless communication (e.g., CDMA), of combining detected multipath signals (i.e., multiple paths from one transmitter antenna to one receiver antenna) using weightings derived from an eigenvector of the matrix of covariances of the detected multipaths. Application page 8, bottom 11 lines plus page 9, top 7 lines list the method steps with $\mathbf{y}(k)$ denoting the vector of detected multipath signals for time interval k (see last paragraph on page 5). The combining is the sum on page 9, line 3 where $\mathbf{w}_A$ is the eigenvector corresponding to the largest eigenvalue of the covariance matrix.

Rule 41.37(c)(1)(vi) Grounds of rejection to be reviewed on appeal

The grounds of rejection to be reviewed on appeal are:

(1) Claims 1-2 were rejected as anticipated by the Sullivan reference.

(1) Claims 1-2 were rejected as anticipated by Sullivan; the Examiner cited column 5, lines 58-60 and Fig.2 element 22 for the single antenna limitation of claim 1.

Appellants reply that "antenna element" in Sullivan is not a single antenna as required by claim 1, but rather multiple antennas. In particular, Fig.2 shows three antennas (22a, 22b, 22c) feeding beamformer 24, and column 5, lines 41-51 refer to Fig.2 as showing a base station site which "... includes an antenna element 22, beamformer 24 ...". Furthermore, a beamformer must have more than one antenna input/output in order to form a beam or to make directional detection as in column 5, lines 46-49. Similarly, column 6, lines 27-30 notes the direct path direction used as isolating the direct path component 20a from the other multipath components of signal 20. That is, the detection and ranging in Sullivan cannot work with only a single antenna.

Consequently, Sullivan does not suggest the claim 1 requirement of a single receiver antenna, and claim 1 plus its dependent claim 2 are patentable over Sullivan.

Rule 41.37(c)(1)(viii) Claims appendix

1. A method of multipath combining, comprising:

      (a) forming at least one matrix of covariances of multipath inputs from a single receiver antenna;

      (b) finding an eigenvector of said matrix; and

      (c) combining said multipath inputs relatively weighted according to the components of said eigenvector.

2. The method of claim 1, wherein:

      (a) said eigenvector is associated with a maximal eigenvalue of said matrix.

Rule 41.37(c)(1)(ix) Evidence appendix

Rule 41.37(c)(1)(x) Related proceedings appendix